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ALASKA DEPT. OF  
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JOB REPORT

1984 FISH SURVEY ALONG THE PROPOSED  
COMINCO ALASKA INC. ACCESS ROUTE

October 12, 1984

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# Dames & Moore



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made on the main Omikviorok River and on Dud Creek (Dames & Moore, unpublished data).

This report compiles and includes information from those earlier surveys along with results from the 1984 surveys.

## 2.0 MATERIALS AND METHODS

The primary method used for sampling fish in 1984 was a Smith-Root Type VII electroshocker fished in the pulsed DC mode. In 1982 and 1983 work, a Type XI electroshocker was used. In all 3 years, aerial stream surveys for spawning fish were conducted from helicopters. All streams with reasonable potential for spawning by anadromous fish were flown for several miles both up and downstream during late August or early September of at least one of the study years.

At all crossings surveyed, the nature of the stream habitat was qualitatively described and the stream then electroshocked for up to 100 meters up and downstream. Lesser distances were sampled in streams with moderate to high densities of fish. Fork length was measured on all salmonids captured and total length was recorded for cottids.

## 3.0 RESULTS AND DISCUSSION

### 3.1 GENERAL

A total of 17 potential stream crossings was surveyed between August 21 and 24, 1984. Of these, 14 were found to contain fish in the immediate vicinity of the crossing. In addition, the Lake Fork of the Omikviorok and the upper North Fork of Evaingiknuk Creek had fish downstream of the crossing, although none was taken at the crossing. Arctic char (Salvelinus alpinus) was the predominant species taken, followed by the sculpin (Cottus cognatus). Surprisingly, no juvenile Arctic grayling (Thymallus arcticus)

only faint parr marks suggestive of a resident (vs. migratory) race; however, its gonads were very immature. In August, 1982, grayling fry (50-60 mm) were taken just downstream of the present crossing.

### 3.3 OMIKVIOROK RIVER SYSTEM

The Omikviorok River is a large system draining most of the west side of the southern Mulgrave Hills and emptying into Ipiavik Lagoon. The system includes five major tributaries, called (from south to north) the South Fork, Quartz Fork, Dry Fork, and Main Fork; the Main Fork divides just above the crossing into the Summer and Winter forks. The Winter Fork carries by far the greatest flow, about 45 percent of the total flow in these five forks as measured in August 1982. Aufeis is common on the Winter Fork, particularly in Sec. 19 and 20 of T27N, R21W. A second major aufeis area extends for about 2 miles downstream of the Dry Fork confluence in Sec. 34, T27N, R24W.

A peculiarity of this system is that lower reaches of all the major tributaries lose substantial quantities of flow between about 400 and 200 feet of elevation. For example, the Main Fork, which had 150 cfs combined flow at about 325 feet elevation, dropped to 37 cfs at the 130 foot elevation in mid-August 1982. The Dry Fork is just that (dry) for several miles above its confluence with the Main Fork for most of the summer. Much of this subsurface flow reenters the channel in the large aufeis area mentioned above; resultant springs in fact account for the aufeis.

These spring areas are also the focus of spawning by char as well as pink (Onchorhynchus gorbuscha), chum (O. Keta), and other species of salmon. Presence of char in all significant upper tributaries of the Omikviorok suggests either:

- a) long upstream migrations by anadromous juveniles, or
- b) presence of overwintering areas permitting survival of resident breeding populations.

No anadromous char spawning has been discovered in tributaries except in the Winter Fork (see Crossing No. 9 below).

Crossing No. 4 West Branch, South Fork - Omikviorok River (Aufeis Creek)

At the crossing (NE 1/4, Sec. 27, T26N, R23W), this stream has a shallow incised channel with dense willow brush on the banks. Flow was measured below the confluence with the East Branch at 27 cfs on August 17, 1982. The channel is relatively straight at the crossing with moderate to high gradient riffles and a coarse cobble/gravel bed. If a culvert is used here, the centerline should be moved upstream about 15-20 m to a lower gradient run. At greater distances from the crossing, the stream is sinuous with some large gravel bars on the inside of the bends.

Fish habitat is excellent in lower gradient areas and char density was moderate. Fry (59-66 mm) and two possible size classes (92-101; 123-124 mm) of juveniles were taken. The larger size class had light orange spots suggesting stream residency; gonads were very small. Arctic grayling adults and fry were taken in August 1982 just below the confluence with the East Branch.

Crossing No. 5 East Branch, South Fork - Omikviorok River (East Fork - Aufeis Creek)

This crossing (NW 1/4 1/4, Sec. 26, T26N, R23W), is generally similar to No. 4. The stream is partially incised and moderately sinuous with occasional gravel bars on the inside of bends. The gradient is moderate to high in the overall reach, but less steep than at the crossing No. 4 centerline. The streambed is coarse gravel to boulders; banks are either willow, grass or gravel bar. Fish habitat is excellent and char juveniles (104-126 mm) were taken.

Crossing No. 6 Quartz Fork - Omikviorok River (Deadman Creek)

At the surveyed centerline (NW 1/4 1/4, Sec. 24, T26N, R23W), the Quartz Fork was running some 5 cfs in a shallow riffle of moderate gradient.

